VIII. Issues, Goals and Recommendations

Based on the assessment information presented in earlier sections, plus the input from public comments and the combined experiences of the land management professionals working in the EOEA agencies, a number of resource management issues and needs have been identified. Some of these are specific to the Lower Worcester Plateau ecoregion; others are statewide issues, or may apply to multiple ecoregions. From this set of issues, management goals and recommendations have also been identified. These goals and recommendations will help guide future management activities and planning on state-owned properties in the ecoregion. Further, it is our hope that conservation organizations, large forestland owners, and other private landowners in the ecoregion will use this document in planning management activities on their properties.

It's important to recognize that decisions about how to manage forestland, whether public or private, are based on a number of factors, including landowner values and objectives. On state lands, such decisions are often guided by legislation and agency policies. Accordingly, prior to listing the management issues, it is useful to summarize the missions and mandates for the three state divisions that manage the state lands within the Lower Worcester Plateau Ecoregion.

Massachusetts' Land Management Agencies

The reorganization of Massachusetts state government that occurred in 2003 resulted in several agency name changes. In particular, the former Metropolitan District Commission (MDC) and the Department of Environmental Management (DEM) were combined into a new Department of Conservation and Recreation (DCR). Two new divisions within this department have primary responsibility for public land management: the Division of State Parks and Recreation (DSPR, which controls approximately 285,000 acres) and the Division of Water Supply Protection (DWSP, controlling approximately 103,000 acres). The former Department of Fish, Wildlife and Environmental Law Enforcement was renamed the Department of Fish and Game, within which the Division of Fisheries & Wildlife (also known as MassWildlife) controls approximately 130,000 acres statewide.

Following is an overview of the missions and mandates of these three state land management agencies:

Division of Water Supply Protection

The Division of Water Supply Protection has a mandate to "utilize and conserve…water and other natural resources in order to protect, preserve and enhance the environment of the commonwealth and assure availability of pure water for future generations" (Chapter 372 of the Acts of 1984). Within this statute the Division is also directed to periodically prepare watershed management plans that shall provide for "forestry, water yield enhancement and recreational activities".

Division of State Parks and Recreation

The Division of State Parks and Recreation is dedicated to improving the quality of life in the Commonwealth of Massachusetts by conserving our natural and cultural resources through professional stewardship and connecting people to these resources through recreation and education, and cooperating and partnering with others who share this common purpose. DSPR is the steward of over 300,000 acres of the state's forests, beaches, mountains, ponds, riverbanks trails, and parks. The DSPR protects land and resources on privately and municipally held land through technical assistance, grant programs, planning programs, policy development and other resource protection services. The Division's stewardship of natural and cultural resources provides significant benefits to the Commonwealth and its citizens including: clean water, open space,

wildlife, habitat, timber, environmental education, and opportunities for outdoor recreation and renewal. The powers and responsibilities for DSPR are set forth in M.G.L.'s Chapters 21, 132, and 132A.

Division of Fisheries and Wildlife

The Massachusetts Division of Fisheries and Wildlife (DFW) has statutory responsibility for the conservation (including protection, restoration, and management) of Massachusetts' flora and fauna (Darey and Jones 1997). As an agency of the Executive Office of Environmental Affairs (EOEA), DFW is empowered by Massachusetts General Law (MGL), Chapter 21A, section 2, sub-section 3 to "provide for the propagation, protection, control and management of fish, other aquatic life, wildlife, and endangered species", and under sub-section 15 to "manage all lands and properties acquired by or assigned to [DFW] to preserve their natural beauty, wilderness, or open character or hydrological, geological, historical, scientific, wildlife management, recreational or other significance or value".

Specific to DFW, MGL Chapter 21, Section 7H, establishes within DFW *"…a bureau of wildlife research and management…[to] provide for all beneficial forms of wildlife …[through] wildlife research and management…*". Furthermore, MGL Chapter 131, Section 4, sub-section 16, empowers the Director of DFW to *"enter into such contracts as the director…deems necessary or appropriate to fulfill the responsibilities and mandates of the agency, including, but not limited to, contracts for the cutting and sale of timber on lands managed by the division…".*

The missions of all three agencies also include, to varying degrees, technical assistance, education and regulation of activities on private forestland. Of the three, the DSPR is most active on private forest lands. Accordingly, goals and objectives for technical assistance, education and other state programs directed at non-state forestlands will also be presented in this section. It should also be noted that in order to increase the chances of successfully implementing management goals and objectives across the whole ecoregion, the support of municipalities, conservation organizations and private landowners will be extremely important.

Specific Issues, Goals and Recommendations for Action

Following are the main ecological or management issues identified for the Lower Worcester Plateau ecoregion, arranged by the same categories used in the earlier assessment sections. It should be noted that the numbering of these issues does not connote a ranking or prioritization.

Conservation of Biological Diversity

Issue 1: Historic land use has left behind predominantly mid-seral stage forests in this region. Consequently, there are relatively few contiguous blocks of both older and younger forests in the ecoregion today. These early and late forest seral stages provide habitat features on which many species depend; thus, their limited occurrence limits regional biodiversity. While coordinated active management on state lands can enhance and expand these types of habitat, better education and incentives are needed to address this need beyond state ownerships.

Goal: Enhance and expand the occurrence of contiguous blocks of early and late successional habitats within the Ecoregion.

Recommendations:

- Adopt a set of general habitat goals, such as those proposed by DeGraaf et al (1992) to diversify wildlife habitat conditions in the ecoregion.

- Manage contiguous older forest blocks (100+ years) on state land either on an extended rotation (150+ years) or as reserves.
- Seek opportunities to manage and consolidate large blocks of early seral habitats.
- Seek opportunities to provide contiguous and concentrated large blocks of reserves and areas of extended rotations.
- Reserves and areas of extended rotations should be designed to provide for biodiversity, protection of habitat and rare species, but also consider impacts to recreational opportunities and water resources in their development. These areas should meet multiple resource objectives.
- Coordinate with state, federal and local governments and private landowners to assist with reserve and large block identification and management.
- Target technical and financial assistance (e.g. federal and state cost-sharing programs) and educational efforts on private forests that complement state practices to enhance early and late seral habitats, especially in areas where regional biodiversity would be enhanced by blocks of early or late seral forests.

Issue 2: Presently, there is no coordinated approach to creating and maintaining a system of forest reserves in the state. Such a system would provide multiple benefits, including: providing ecological reference conditions; creating or maintaining under-represented ecological conditions; protecting viable habitats or other features that are sensitive, rare or unique in the landscape and least likely to be maintained within managed forests; providing baseline scientific conditions or features for research, or to instruct forest management; and providing unique recreational and spiritual values for the citizens of the Commonwealth. The designation of forest reserves is a potentially controversial topic that must incorporate a number of ecological and social factors. Therefore, an appropriate process for reserve identification, establishment and maintenance is also needed.

Goal: Establish a network of forest reserves in the LWP Ecoregion that provides a wide range of ecological and social benefits.

Recommendations:

- Develop an objective scientific methodology for identifying potential small and large patch forest reserve areas on EOEA lands in Massachusetts with consideration of existing TNC work and incorporation of public input.
- Utilize existing TNC work to help identify potential large "matrix" forest reserves, encompassing both public and private lands, in one or more portions of the state. Opportunities for large reserves should be assessed using a collaborative, public-private partnership approach. Incorporate public input into these assessments.
- Utilizing the above work, identify forest reserves on approximately 15% of state-owned lands in the LWP through a collaborative effort using GIS and other tools in conjunction with the local knowledge of land managers and other experts while addressing any logistical or managerial constraints related to agency missions or mandates.
- Include opportunities for public input into the identification, establishment and maintenance of a forest reserve system, including the posting of draft maps and methodologies on the EOEA website.

Issue 3: The occurrence of high-grading in the ecoregion's forest is causing the degradation of economic and ecological values of some of our most valuable forests. High-grading is the removal of only individual trees with the highest economic value, leaving a residual forest dominated by poor quality trees and species. Inadequate recognition of the economic value of long-term stewardship, combined with poor markets for low quality products have led to

heavier cutting of higher-value species and higher-quality trees in the region. The overall result is a trend toward lower per acre value and quality of the region's forests. High-grading also can short-change landowners as high quality trees are often harvested just at the age where they quickly add growth and value and where they provide the most benefit for wildlife. High-grading also removes high quality trees as a seed source before regeneration cuts occur.

Goals: ***Minimize high-grading within the Commonwealth. Encourage the application of sustainable forest management (silvicultural systems) to meet landowner objectives. Meet Landowner's objectives through the use of conservation biology principles.***

Recommendations:

- Implement a new Forest Cutting Plan that documents cutting which results in residual forests dominated by poor quality trees and species and requires that the landowner sign an acknowledgement of this fact.
- Monitor the effectiveness of the new Forest Cutting Plan on high-grading.
- Monitor the extent of high-grading over the first year of this program change and take further action, if necessary to reduce high-grading.
- Send the new "Woodlot Owners Guide", which includes a detailed explanation of the environmental and economic benefits of long-term forest stewardship and the problems with high-grading, to the owners of 500,000+ acres of the state's private forest land over the next two years.
- Provide educational opportunities for private landowners on the problems with high-grading and the environmental and economic benefits of long-term forest management.
- Post an article on the Department of Conservation and Recreation web site outlining the problems and solutions for high-grading.
- Cooperatively work with industry, state agencies, research universities and technical institutes to develop new technologies and promote existing industries that utilize low quality forest resources.
- Seek grants to establish and promote industries that utilize low quality forest resources.
- Seek opportunities to utilize and market forest products that are derived from low quality forest resources.
- Make state-owned forests models of sound silvicultural practices and sustainable forest planning.
- Provide multiple incentives for offering forest management expertise to private forest landowners.
- Provide opportunities to work with harvesters and primary manufacturers to promote sustainability (including various Forest Certification systems) of natural resources.
- Convene a forest conference in the spring of 2004 with diverse representation from all parts of the forestry community. One of the goals of the conference will be to explore ideas and develop actions that address the high-grading issue.

Issue 4: Unprotected forests in the region are being fragmented by development. Concomitant impacts include loss of habitat viability and shrinkage in average ownership parcel size, which reduces the economic viability of management. Even though the forest within the ecoregion still has large blocks of unfragmented habitat, studies show that even small amounts of scattered development are causing significant reductions in these forest blocks. For example, a study by Harvard Forest found that the average unfragmented forest block in the region north of Quabbin Reservoir declined from 1,100 to 800 acres due to scattered housing development in one recent 15 year period.

Goal: ***Target state, municipal and private land conservation efforts at protecting the largest, most intact and threatened forest blocks in the ecoregion.***

Recommendations:

- Target limited state, municipal and private land conservation funding and efforts to educate landowners about the benefits of gifts or bargain sales for conservation and work in partnership to protect high conservation value parcels.

Issue 5: "BioCore" areas, Priority Habitats, Living Waters "Core Habitats" and other special habitats have been identified in this ecoregion. However, many of these sensitive sites occur on private, unprotected land. With sprawl development occurring with increasing frequency within the ecoregion, the features and values associated with these fragile resources may be threatened.

Goal: ***Target state, municipal and private land conservation efforts at BioCore areas, Priority Habitats, and Core Habitats.***

Recommendations:

- Target limited state, municipal and private land conservation funding and efforts to educate landowners about the benefits of gifts or bargain sales for conservation and, in partnership, protect key parcels.
- When necessary consult with the MA NHESP on the management of private forest lands.

Issue 6: "Restoration forestry" should be used as needed on state lands and encouraged on private lands. This type of forestry helps to restore the ecological structure of our forests to a condition closer to that found prior to European settlement.

Goal: ***Where appropriate, restore forests (formerly extensively high-graded) to a more natural and native condition.***

Recommendations:

- Manage for larger, more heterogeneous forest stands, limit whole tree chipping, and set policies to allow for adequate coarse woody debris after logging by including these objectives in state lands management plans and encouraging licensed foresters to incorporate this approach in forest management plans done on private forest lands.
- Restore previously high-graded stands through silvicultural systems that promote suitable ecological conditions (i.e., natural forests, snags, legacy trees, coarse woody debris, etc.).

Forest Conditions, Health, and Productivity

Issue 7: The large, contiguous blocks of oak forest in this ecoregion are of exceptional wildlife and economic value. These oak forests are under pressure from pests such as the gypsy moth, fragmentation by development, and short-term liquidation of their valuable timber. Furthermore, regenerating these forests requires more careful, deliberate silviculture than is required to regenerate other types in this ecoregion, and this type of silviculture is difficult to implement consistently throughout the ecoregion.

Goal: ***Maintain and enhance the oak forest across the ecoregion, especially the early and late seral oak habitats.***

Recommendations:

- Increase education and training of licensed foresters in the regeneration of oak forests.
- Coordinate public-private efforts to expand demonstration forests that show a variety of successful oak regeneration techniques.
- Target technical assistance (state and federal cost share programs) to furthering best silvicultural practices for oak regeneration.
- Encourage the maintenance and enhancement of older oak forests on private lands.
- Maintain a component of older oak forest on state forest lands.

Issue 8: Hemlock woolly adelgid (HWA) has arrived in the ecoregion and threatens the majority of its hemlock forests. State agencies and private organizations are working to develop and implement strategies for responding to this pest, but difficult issues remain in predicting the pace of hemlock mortality, looking for effective and affordable biological or chemical controls, anticipating changes in regional markets for salvaged hemlock, and attempting to replace habitat values lost through hemlock mortality.

Goal: ***Minimize the impact of HWA on the forest within the ecoregion.***

Recommendations:

- Develop HWA action plans for state forest lands that include a diverse array of actions across the various hemlock stands within the ecoregion. Actions may include: establishing hemlock regeneration through silvicultural thinning; salvage harvests at pre-defined stages of infestation, no action, and possible intensive stand protection for a few stands of particularly high wildlife, ecological or social value.
- Partner with others to educate and coordinate responses to HWA.
- Monitor the results of various actions to improve future response.

Soil and Water Conservation

Issue 9: Collectively, the forests of this region protect and provide drinking water for close to 50% of the population of Massachusetts, with surface water reservoirs being the primary sources. Without forest cover, the cost to maintain the quality of these water sources would greatly escalate. This value needs to be better accounted for in support of conserving these watershed protection forests for current and future generations. The protection of forest lands should be increased to ensure that future water quality objectives can be achieved.

Goal: ***Enhance the protection of the ecoregion's water supplies via improved land conservation and forest management***.

Recommendations:

- Evaluate the possibility of expanding land conservation on watersheds that provide drinking water to the Massachusetts Water Resources Authority (MWRA) by taking these capital expenditures off the state bond "cap" because all debt service is fully reimbursed by the MWRA.
- Partner with others to submit a multi-owner Forest Legacy application within the ecoregion's Forest Legacy Areas that includes water supply protection values of forest land.

- Continue to offer landowner incentives to join the Forest Stewardship Program to private landowners within the ecoregion, especially those on drinking water supply watersheds.

Issue 10: Unregulated (or inadequately patrolled) motorized vehicle (ORV/ATV) use on forest lands has resulted in increased soil erosion, causing water quality degradation and forest resources interference in this ecoregion.

Goal: Reduce damage resulting from ORV/ATV activity within the ecoregion.

Recommendations:

- Develop agreements between state and non-profits with local police departments in key impact areas to improve enforcement of regulations.
- Implement education programs to user groups and retailers regarding use of ORV/ATV's on public, non-profit and private forest lands.

Regional and Global Considerations

Issue 11: Substantial acreage of forests in this ecoregion is mainly in a "mid" seral condition and as such is sequestering carbon at high rates. However, for the enhancement of biodiversity and sustainable forestry goals for the ecoregion, a more diverse composition of forests, including significant components of young and older forests is desired. Where it meets the goals of this document, active forest management can increase growth and produce higher quality final forest products such as furniture that continue to hold carbon for extended periods.

Goal: Quantify the benefits of a comprehensive approach to the management of the forests of this ecoregion with regard to carbon sequestration.

Action:

- If significant carbon sequestration benefits are determined to result from the forest management approach adopted in this plan, apply to various programs for "carbon credits" as a way to help finance the implementation of some of the actions recommended in this document.

Issue 12: While the region consumes large quantities of energy, and could sustainably produce large quantities of "green certified" biomass, there is only limited support for building the capacity to include biomass in the mix of energy sources. Relying more on this local, renewable and carbon-neutral energy source could enhance forest protection and management and the rural economy while reducing the region's dependence upon importation of its energy.

Goal: Utilize existing state and federal renewable energy programs to fund a significant biomass application within the ecoregion.

Action:

- Submit applications to renewable energy grant programs to support funding of feasibility, design and construction of a significant biomass application within the ecoregion.

Issue 13: Chapter 61, the forest tax law, has approximately 350,000 acres enrolled or about 15% of the state's private forest land. The percentage of land enrolled in the program has not significantly increased for some time. Several commenters to this document suggested changes to Chapter 61 to make it more inviting to new enrollees.

Goal: To increase the amount of land enrolled in Chapter 61 or a similar program that has significant incentives for landowners to keep land in forest cover.

Recommendations:

- Convene a forestry conference in the spring of 2004 with a diverse participation – one of the goals of this conference should be to set up a process to meet the above goal.
- Continue to offer targeted forest landowners a state-funded Forest Stewardship Plan as an incentive to join that program. Approximately 80% of participants in this program also enroll in Chapter 61. The goal of the current effort is to add 30,000 acres to the Stewardship Program by July, 2004.

Issue 14: Rural communities with a significant percentage of state lands are very concerned that the payments in lieu of taxes (PILOT) do not adequately pay for the cost of having state lands within their communities. Costs for activities such as forest fire fighting, search and rescue, and law enforcement generally exceed the PILOT. Historically, rural communities received a similar per acre PILOT as suburban communities until the law was changed to assess open space land based on its fair market value for development. This change shifted the bulk of PILOT payments to suburban towns.

Goal: Find a way to more equitable pay rural communities for the costs of having significant amounts of state lands within their communities.

Recommendations:

- Convene a panel of balanced, represented interests to review current system and propose approaches and alternative methods that adequately and equitably compensate local communities for the loss of property tax revenues from state forest land. Consider assessing the value of open space land based on its forest, water supply and recreational value. This would help to equalize PILOT payments across the Commonwealth.
- Advocate for more widespread support for legislation that will add a 20% surcharge to DCR facilities with ½ of this income going to the host community and ½ shared equitably by all PILOT communities.
- Advocate for more widespread support for legislation that will dedicate a larger portion of DCR, DSPR timber revenues to the towns in which the revenue is generated.
- Fully implement sustainable, Green Certified forest management plans for all state ownerships over the next 10 years and thereby significantly increase the amount of payments to local communities with DCR, DSPR land.

Issue 15: There are few local markets for forest products within the ecoregion for the trees harvested here. In addition, due to state bidding procedures, forest products are awarded to the highest bidders, causing a lack of continuity of management and the award of bids to contractors out of the region or state.

Goal: Find ways to directly link sustainable forestry within the ecoregion to strengthening the local economy.

Recommendation:

- Implement a pilot project on state ownerships that would try innovative management methods including the use of licensed private consultants to implement forest plans, the award of long-term harvesting contracts to local wood producers who can utilize local value-added markets and other innovative ways to benefit state lands and the local economy.

Issue 16: The 15 ecoregional documents are a great opportunity for the public to have input into state policies and actions with regard to the forests of Massachusetts. Adequate notification to a broad range of interested parties and time for input should be allowed.

Goal: Expand public input and awareness of the ecoregional planning project across the state.

Recommendations:

- Utilize the EOEA web site to post the schedule for ecoregion document development, and draft and final ecoregional guidance documents.
- Utilize e-mail to expand the efficiency and scope of the notification process for ecoregional documents.

Issue 17: Although there are a number of notable exceptions (e.g., some of the larger commercial landowners, and "green certified" private lands), many private forests in the region are still being cut to produce cash from the most valuable trees. Improvement cuttings and long-term tending are less common. Better education and demonstration of the potential economic returns from high-quality, long-term forest management are needed in the region, to provide incentives for sustainable stewardship of these properties.

Goal: See Issue 3 above.

Recommendations: See Issue 3 above.

Issue 18: Landowners are poorly compensated for the services provided by their undeveloped forestland to others within and beyond this ecoregion. These include protecting drinking water supplies, moderating climate and filtering air, supporting biological diversity, providing open space and recreation, and attracting tourists. Without compensation for these benefits, development often provides the greatest apparent value for the land.

Goal: Improve the understanding and appreciation of the public, (especially those receiving the benefits), for the non-extractive values of the forests of this ecoregion.

Recommendation:

- Convene a forest conference in the spring of 2004 with diverse representation from all parts of the forestry community. With the support of the whole forestry community, plan actions involving public and private partnerships that greatly expand the education of the public of the value of forests. The educational effort should include web site information, publications, demonstration forests and other means.

Issue 19: Absence of the infrastructure required to process high-quality forest materials and manufacture high value products results in the exportation of the greatest potential non-development value (and value-added products) from the forests of the region. Without the ability to capture this local, renewable economic resource, rural areas are coming under increased pressure to convert forestland to other uses.

Goal: Maintain and expand the infrastructure to process forest products.

Recommendation:

- Work for a consensus of the forest community to advocate for inclusion of the state support for capturing "value added" economic benefits to the forest products industry in future economic stimulus legislation.
- Educate the legislature and general public about the significant lost economic opportunity to Massachusetts rural communities when the "value added" component of forest products is lost to the state.

Issue 20: The development of greater local forest product manufacturing would require predictable access to timber resources, which in turn requires public trust in the environmental soundness of harvesting practices. The forest certification process to which all state lands have been recently subjected provides third party assessment of the long-term sustainability of forest management practices on state lands in this ecoregion. Sustainability of practices on private lands has generally not been assessed.

Goal: Develop and maintain predictability of flow of forest resources to manufacturers.

Recommendations:

- Encourage foresters and industry to work with private landowners to provide a more predictable, sustainable flow of forest resources.
- Increase the education of private forest landowners about Forest Stewardship Council, Sustainable Forestry Initiative and Tree Farm certification systems.
- State agencies and elected officials need to work with industry to provide a more predictable, sustainable flow of forest resources.

Issue 21: Cultural resources are fragile and non-renewable. Once destroyed, they are gone forever, giving them a value that is difficult to calculate. Plans and procedures are needed to locate and assess the condition of both historic and prehistoric cultural resources and to protect these unique and significant resources.

Goal: Assure the long-term protection of cultural resources in the LWP ecoregion.

Recommendations:

- Educate and train land management staff in the identification and protection of cultural resources.
- Establish communication channels between land managers and DCR Cultural Resource Management staff for information sharing, and to assure compliance with state and federal laws, regulations and procedures.
- Incorporate applicable BMP's into forest management operations (see Appendix V).

IX. Infrastructure and Resource Needs

Given the current fiscal challenges each state division is facing, it is critical that the goals and objectives developed to address each issue be framed in a realistic manner. To the extent possible, innovative ways to utilize available resources and to leverage additional resources by partnering with outside entities will be examined. As one of the goals of this ecoregion guidance document is to improve coordination and integration of forest management efforts among the three divisions, actions that can build on the strengths of each division in assisting other divisions will also be examined. The specific methods by which this coordination and integration will be accomplished will be outlined in the final document.